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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/789,927 | 02/27/2004 | Werner Penkert | NHL-KEH-26A | 6812 |
| 52671 | 7590 | 06/02/2006 | EXAMINER | |
| KENNAMETAL INC. 1600 TECHNOLOGY WAY LATROBE, PA 15650-0231 | | | ADDISU, SARA | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3722 | |

DATE MAILED: 06/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/789,927 | PENKERT, WERNER | |
| | Examiner | Art Unit | |
| | Sara Addisu | 3722 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 17 and 19-22 is/are rejected.
- 7) ☒ Claim(s) 14 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/23/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the amendment filed 3/30/06. Currently, claims 1-14 and 17-22 are pending in this application.

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on 8/28/01. It is noted, however, that applicant has not filed a certified copy of the 101 42 049.8 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lagerberg (U.S. Patent No. 4,632,606) in view of Komanduri (US Patent No. 4,714,385).

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Lagerberg teaches an indexable insert (13) having an insert body (23) with a working hard material circular wafer (24: Figure 3) preferably consisting of ceramics (Figures 1, 3 & 6, and Col. 2, lines 27-31) with recess for receiving the working hard material circular wafer (24).

However, Lagerberg is silent about the material used for the base body of the insert (i.e. doesn't teach cemented carbide body).

Komanduri teaches cutting tools having a thin diamond/CBN layer (for the cutting portion) and cemented carbide backing (to provide the support base) ('385, Col. 1, lines 34-36 and 58-63). Komanduri also teaches the substrate structure can have any number of desired shapes and also has a recess for receiving said layer. ('385, Col. 2, line 66 to Col. 4, line 16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Lagerberg's invention such that the base body of the insert is made of cemented carbide as taught by Komanduri because cemented carbide bodies are commercially available and are well known in the art, and have been used as substrates ('385, Col. 2, lines 36-38).

2. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lagerberg (U.S. Patent No. 4,632,606) in view of Komanduri (US Patent No. 4,714,385) and further in view of Parker (U.S. Patent No. 4,552,491) and (European Publication No. 0552714).

The modified device of Lagerberg teaches teaches the claimed invention, a cutting insert having a circular wafer (tip) where the exposed cutting edge has a partial circle shape, except for the specific angle of the partial circle. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the partial circle angle such that is 200 degrees but not more than 230 degrees, to have control of the flow of the chips at all times, as evidenced by (European Publication No. 0552714, Col. 2, lines 40-47), because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Applicant should further note that Specification gives no criticality or unexpected results to the claimed limitation (see Page 8, lines 18-19 and page 12, lines 1-6).

3. Claims 2-4, 7-9, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lagerberg (U.S. Patent No. 4,632,606) in view of Komanduri (US Patent No. 4,714,385) and further in view of Parker (U.S. Patent No. 4,552,491) and (European Publication No. 0552714).

The modified device of Lagerberg teaches a cutting insert as set forth in the above rejection. Lagerberg also teaches a circular wafer (tip) having a top and a front wall that intersect to form partial circle cutting edge and a recess having a bottom

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surface and a side surface disposed substantially transverse to the bottom surface (see figures 3 & 6 and Col. 2, lines 36-37). Furthermore, Lagerberg teaches wafers (tip) being attached to the body through welding or soldering (Note: brazing and soldering are metallurgically identical processes that involve joining components without melting the base materials. Both processes use a filler metal which is interposed between the two base materials).

However, the modified device of Lagerberg fails to teach the cutting body having a perpendicular circular truncated cone shape with one end surface being smaller in diameter than opposite end surface.

Parker teaches an insert having a (perpendicular) truncated cone-shape with the larger part of the diameter on the top planar end (14) and the side wall intersecting with the top surface to form circumferential cutting edge (Figures 1 & 2). Furthermore, Parker teaches cylindrical wall (18) of the insert tapering to provide relief (clearance) angle (B) that is in the range of 4-10 degrees but preferably at 7 degrees (Col. 3, lines 7-8 & 17-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Lagerberg's invention such that the circular shaped wafers (tips) are replaced by a perpendicular circular truncated cone shape with one end surface being smaller in diameter than opposite end surface as taught by Parker because Lagerberg teaches that the shape of the wafer (tip) may vary depending on the type of machining wanted (Col. 2, lines 33-35).

4. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lagerberg (U.S. Patent No. 4,632,606) in view of Komanduri (US Patent No. 4,714,385) and further in view of Parker (U.S. Patent No. 4,552,491), (European Publication No. 0552714) and Morsch (U.S. Pub. No. 2002/0131832).

The modified device of Lagerberg teaches a cutting insert as set forth in the above rejection.

However, the modified device of Lagerberg fails to teach one groove, defined by raised portions on either side, extending transversely to the longitudinal axis of the insert.

Morsch teaches a cutting insert (510: figure 23) having a cemented carbide body (Page 2, paragraph 38, lines 1-2) with recess (575) for receiving U-shaped tip (cutting body) (585). Morsch also teaches the tip having a top and front wall that intersect to form partial circle cutting edge (Page 1, paragraph 12, lines 3-4). Furthermore, Morsch teaches clamping surface (598) having one groove, defined by raised portions on either side, extending transversely to the longitudinal axis of the insert (see figure 23).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Lagerberg's invention such that the insert is secured by a clamp as taught by Morsch, since it is well known in the art to secure an

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insert using any number of different configurations, whether it be a hold down screw or a clamp (2002/0131832, Page 4, paragraph 75).

5. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lagerberg (U.S. Patent No. 4,632,606) in view of Komanduri (US Patent No. 4,714,385) and further in view of Wiman et al. (U.S. Patent No. 6,217,263).

The modified device of Lagerberg teaches an insert as set forth in the above rejection.

However, the modified device of Langerberg fails to teach the use of the insert for copy-turning a workpiece.

Wiman et al. teaches an indexable metal (therefore capable of being used on workpiece made of aluminum) insert, adapted for copy-turning (Abstract, lines1-2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize Lagerberg's insert for copy-turning a workpiece taught by Wiman et al., since it is well known in the art to use indexible inserts for application within a broad range such as copy-turning ('263, Col. 1, lines 15-18).

Allowable Subject Matter

Claims 14 and 18 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

- The Declaration under 37 CFR 1.132 filed 3/30/06 is insufficient to overcome the rejection of claims 1 and 17 based upon 35 U.S.C. 103(a), as set forth in the last Office action because:

It states that the claimed subject matter solved a problem that was long standing in the art. However, there is no showing that others of ordinary skill in the art were working on the problem and if so, for how long. In addition, there is no evidence that if persons skilled in the art who were presumably working on the problem knew of the teachings of the above cited references, they would still be unable to solve the problem. See MPEP § 716.04.

The declaration submitted mentions that, " It was not possible to make a useable cutting insert by the joining of a ceramic cutting body to a cemented carbide base body because of the high heat and stresses produced during a cutting operation, which high heat and stresses were believed would cause the ceramic cutting body to be loosened from the cemented carbide base body during use of the cutting insert". Examiner respectfully points out that Applicant invention also has this "unusable" combination (i.e.

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cemented carbide base body jointed to a ceramic cutting body) and so it is not clear how the insert works if Applicant admits that the insert of the instant application is not functional. Furthermore, Examiner refers applicant to Specification (page 5, lines 11-14) where Applicant admits that high-temperature resistant adhesives are "known and familiar to those of ordinary skill in the art). Such high-temperature brazing fillers are evidenced by Makino et al. (USP 5,104,747) where Makino et al. teaches silver brazing filler Bag8 having a melting temperature of 780 degrees C as well as product of silicon nitride and nickel obtained by diffusion bonding can withstand temperature up to about 800 degrees C ('747, Col. 2, lines 1-31). Therefore, Examiner asserts that it is possible to make a useable cutting insert by the joining of a ceramic cutting body to a cemented carbide base body.

- Regarding claims 1, 17 and 19, Applicant's argument (page 15, last paragraph), for the same reason explained above, Examiner asserts that the combination of Lagerberg and Komanduri would not fail.
- Regarding Applicant's argument (page 19, lines 9-15), Examiner respectfully points out that the wafer that is attached to the body of Lagerberg's invention performs the cutting as does the circular truncated cone of Komanduri's invention, therefore they can have the same structure. Furthermore, Lagerberg teaches a circular wafer ('606, Col. 2, line 37) and also teaches the shape of the wafer may vary

depending on the type of machining ('606, Col. 2, lines 33-35), therefore acquiring the shape of Komanduri's insert is not considered to be hindsight by the Examiner.

- Regarding claims 5 and 6, Applicant's argument (pages 21-22), Examiner points out that Lagerberg teaches in figure 3 the claimed invention, a cutting insert having a circular wafer (tip) where the exposed cutting edge has a partial circle shape, except for the specific angle of the partial circle. Examiner asserts that it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the partial circle angle to have control of the flow of the chips at all times, as evidenced by (European Publication No. 0552714, Col. 2, lines 40-47), because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Applicant should further note that Specification gives no criticality or unexpected results to the claimed limitation (see Page 8, lines 18-19 and page 12, lines 1-6).
- Regarding claims 10-13, Applicant's argument (pages 23-25, Examiner points out that Lagerberg teaches an insert being bolted to a tool holder using a hold down screw. It is old and well known to secure an insert to a tool holder in any number of ways including a clamp

therefore the modification of the modified device of Lagerberg by Morsch is proper.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sara Addisu at (571) 272-6082. The examiner can normally be reached on 8:30 am - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica Carter can be reached on (571) 272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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SA
5/23/06

Monica S. Carter
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